

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-74. (Cancelled)

75. (New) A method of determining interaction of at least one species with a plurality of individual zones of a sensing surface, which method comprises:

contacting the sensing surface with a fluid sample containing at least one surface interacting species,

irradiating the surface with light so that the light is internally or externally reflected at the surface,

imaging reflected light on a photo-detector, each individual sensing surface zone corresponding to a respective area of the detector,

repeatedly varying the incident angle at the sensing surface and/or the wavelength of the light over an angular and/or wavelength range,

measuring the intensities of light imaged on different areas of the detector, at at least a number of incident angles and/or wavelengths to create a series of images of the sensing surface,

simultaneously measuring the momentary incident angle and/or wavelength of the incident light to correlate each image to a specific incident angle and/or wavelength to obtain at least fifty correlated images per second, and

determining from the relationship between image intensity data and angular and/or wavelength data, interaction of the species with the individual sensing surface zones.

76. (New) The method according to claim 75, wherein the incident angle and/or wavelength of the incident light is measured on a photo-detector.

77. (New) The method according to claim 76, wherein the incident angle and/or wavelength and the image area intensities of light are measured on a common photo-detector.

78. (New) The method according to claim 75, wherein the incident angle of the light is varied.

79. (New) The method according to claim 75, wherein the wavelength of the light is varied.

80. (New) The method according to claim 75, wherein the light is internally reflected at the surface.

81. (New) The method according to claim 75, wherein the light is coupled to the surface via a prism.

82. (New) The method according to claim 75, wherein the light is coupled to the surface via a grating.

83. (New) The method according to claim 75, wherein the creation of images is based on surface plasmon resonance.

84. (New) The method according to claim 75, wherein the determined interaction is a chemical or biochemical binding interaction.

85. (New) The method according to claim 75, wherein the determined interaction is a physical or biophysical interaction.

86. (New) The method according to claim 75, which comprises reading image intensity data into an image data memory and reading angular and/or wavelength data into an angular data memory and/or a wavelength data memory.

87. (New) The method according to claim 75, which comprises calculating a reflectance curve by averaging the zone image intensity data at each angle and/or wavelength and plotting the intensity versus the angle and/or wavelength.

88. (New) The method according to claim 87, wherein at least one reflectance curve per sensor zone is produced per second.

89. (New) An analytical system, comprising:
a sensor unit having a sensing surface with a number of individual zones,
means for illuminating the sensing surface with a collimated beam of light,
means for imaging reflected light from the illuminated sensing surface into an image plane,
means for repeatedly varying the incident angle and/or wavelength of the light incident at the sensing surface over an angular and/or wavelength range,
means for synchronized detection of images in the image plane and incident angle and/or wavelength of light illuminating the sensing surface at a rate of at least fifty images per second, and
evaluation means for determining from the relationship between detected intensity of different parts of the images and incident light angle and/or wavelength, the optical thickness of each zone of the sensing surface.

90. (New) The system according to claim 89, wherein the means for synchronized detection comprises integral photo-detector means.

91. (New) The system according to claim 89, wherein the means for varying the incident light and/or wavelength comprise beam deflecting means to produce an angle-

scanned collimated illumination of the sensing surface, each sensing surface zone momentarily being illuminated by light rays of identical angle of incidence and wavelength.

92. (New) The system according to claim 89, wherein the evaluation means comprise an evaluation unit for determining the angle, and/or the wavelength, for minimum reflectance of p-polarized light, and/or the relative reflectance and phase of the p- and s-polarized electric field components of the light for each of the individual zones of the sensing surface.

93. (New) The system according to claim 89, wherein the sensing surface supports reactants capable of binding interaction with species in a sample.

94. (New) The system according to claim 89, wherein the system comprises a flow cell in contact with the sensing surface to expose the sensing surface to sample solution.

95. (New) The system according to claim 89, wherein the collimated light beam is p-polarized.

96. (New) The system according to claim 89, wherein the system is based on total internal reflection versus angle and/or wavelength of incidence.

97. (New) The system according to claim 89, wherein the system is based on surface plasmon resonance, Brewster angle, ellipsometry, critical angle, or frustrated total reflection waveguide resonance.

98. (New) The system according to claim 89, wherein the system comprises means for calculating a reflectance curve by averaging the zone image intensity data at each angle and/or wavelength and plotting the intensity versus the angle and/or wavelength.

99. (New) The system according to claim 98, wherein at least one reflectance curve per sensor zone is produced per second.

Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 24A-24D. These sheets, which includes Figures 24A-24D, replace the original sheets including Figures 24A-24D.

Attachment: Replacement Sheet(s)